ABSTRACT OF THE DISCLOSURE

09/325,951

A method for forming within a silicon semiconductor substrate employed within a microelectronics fabrication a silicon oxide dielectric layer. There is provided a silicon semiconductor substrate. There is formed upon the silicon semiconductor substrate a blanket silicon oxide pad oxide layer. There is then formed upon the pad oxide layer a patterned silicon nitride masking layer delineating active regions of the silicon semiconductor substrate from isolation regions. There is formed upon the isolation regions by thermal oxidation of the semiconductor silicon substrate in a dry oxidizing environment at an elevated temperature a thick silicon oxide dielectric layer employed as a field oxide (FOX) dielectric isolation layer formed through the silicon nitride patterned masking layer. There is then stripped from the silicon semiconductor substrate the patterned silicon nitride layer, permitting fabrication of microelectronics structures within and upon the semiconductor silicon substrate employing thick silicon oxide field oxide (FOX) dielectric isolation regions without foreign phases or inhomogeneities formed in the "bird's beak" region therein.